## IN THE SPECIFICATION

Please amend the paragraphs of the specification as follows:

On page 1, please replace paragraph [0001] with the following paragraph:

The present Application for Patent claims priority to Provisional Application No. ~~60/XXX,XXX (Attorney Docket No. 030279P1)~~ 60/490,338, entitled "Method and Apparatus for a Control Channel Power Allocation in a Communication System," filed July 25, 2003, and assigned to the assignee hereof and hereby expressly incorporated by reference herein.

On pages 1-2, please replace paragraph [0004] with the following paragraph:

Proper power allocation to the control channels supporting the reverse link transmission is required. It is desirable that MAC channel power not be a limiting factor in supporting a large number of simultaneous reverse link users. Because MAC channel forms two bursts immediately before and immediately after a pilot burst in a given half-time-slot, only a limited amount of time is available for allocating MAC channel power to the control channels. It is desirable to ensure that limitations on the number of simultaneous supportable users are not due to the total MAC channel power but due to reverse link capacity. Additionally, a communication system may need to support both legacy access terminals, i.e., access terminals transmitting on a reverse link complying with a standard, such as the IS-856 standard, and new access terminals, i.e., access terminals transmitting on a reverse link complying with a standard that is backward compatible with IS-856. Therefore, there is a need in the art [[to]] for an apparatus and method for power allocation to control channel in such a communication system.

On page 3, please replace paragraph [0010] with the following paragraph:

**~~FIG. 5A-C~~** **FIGs. 5A-5C** illustrate flowcharts of a more detailed embodiment of a method of power allocation to control channels;

On page 3, please replace paragraph [0014] with the following paragraph:

After registration, which allows an access terminal to access an access network, the access terminal **104** and one of the access ~~point's~~ points, e.g., the access point **100**, establish a

communication link using a predetermined access procedure. In the connected state, resulting from the predetermined access procedure, the access terminal **104** is able to receive data and control messages from the access point **100**, and is able to transmit data and control messages to the access point **100**. The access terminal **104** continually searches for other access points that could be added to the access terminal's **104** active set. An active set comprises a list of access points capable of communication with the access terminal **104**. When such an access point is found, the access terminal **104** calculates a quality metric of the access point's forward link, which may comprise a ~~signal-to-interference and-noise~~ signal-to-interference-and-noise ratio (SINR). An SINR may be determined in accordance with a pilot signal. The access terminal **104** searches for other access points and determines SINR for signal transmitted from each of those access points and received at the access terminal **104**. Simultaneously, the access terminal **104** calculates a quality metric of a forward link for each access point in the access terminal's **104** active set. If the forward link quality metric from a particular access point is above a predetermined add threshold or below a predetermined drop threshold for a predetermined period of time, the access terminal **104** reports this information to the access point **100**. Subsequent messages from the access point **100** may direct the access terminal **104** to add to or to delete from the access terminal **104** active set of the particular access point.

On page 5, please replace paragraph [0017] with the following paragraph:

At each forward link interval, the access point may schedule data transmissions to any of the access terminals that received the paging message. An exemplary method for power allocation to reverse power control (RPC) channels is described in U.S. Patent Application Serial No. 10/263,976, entitled "Power Allocation for Power Control Bits in a Cellular Network," filed October 2, 2002, assigned to the present assignee. The access point uses the rate control information received in the DRC message from each access terminal to efficiently transmit forward link data at the highest possible rate. Because the rate of data may vary, the communication system operates in a variable rate mode. The access point determines the data rate at which to transmit the data to the access terminal **104** based on the most recent value of the DRC message received from the access terminal **104**. Additionally, the access point uniquely identifies a transmission to the access terminal **104** by using a spreading code, which is unique to

that mobile station. This spreading code is a long pseudo noise (PN) code, for example, a spreading code defined by the IS-856 standard.

On page 5, please replace paragraph [0018] with the following paragraph:

The access terminal **104**, for which the data packet is intended, receives and decodes the data packet. Each data packet is associated with an identifier, e.g., a sequence number, which is used by the access terminal **104** to detect either missed or duplicate transmissions. In such an event, the access terminal **104** communicates the sequence numbers of the missing data packets via the reverse link data channel. The access network controller **110**, which receives the data messages from the access terminal **104** via the access point communicating with the access terminal **104**, then indicates to the access point what data units were not received by the access terminal **104**. The access point then schedules a re-transmission of such data packets.

On page 6, please replace paragraph [0024] with the following paragraph:

A new access terminal's reverse link **200** is illustrated in **FIG. 2.** The new access terminals also build a packet into a frame comprising 16 time-slots. The frame is then transmitted in at least two non-contiguous sub-frames, each of the sub-frames comprising at [[lest]] least one time slot. The reverse link overhead channels **206** comprise: a Pilot Channel (PC), an Auxiliary Pilot Channel (APC), a Data Request channel (DRC), an Acknowledgement channel (ACK), Data Source Control channel (DSC), and a Reverse Rate Indication channel (RRI). As illustrated in **FIG. 2**, the packet is transmitted in four non-contiguous sub-frames 2**02**, each sub-frame comprising four time slots. The overhead channels **206** are transmitted continuously.

On page 7, please replace paragraph [0028] with the following paragraph:

The forward link **300** is defined in terms of frames. A frame is a structure comprising 16 time-slots **302**, each time-slot **302** being 2048 chips long, corresponding to a 1.66ms time-slot duration, and, consequently, a 26.66ms frame duration. Each time-slot **302** is divided into two half-time-slots ~~**302a, 302b**~~ **302A, 302B**, with pilot channel bursts ~~**304a, 304b**~~ **304A, 304B** transmitted within each half-time-slot ~~**302a, 302b**~~ **302A, 302B**. Each pilot channel burst ~~**304a,**~~

~~**304b**~~ **<u>304A, 304B</u>** is 96 chips long, centered about a mid-point of its associated ~~half-time-slot~~ <u>half-time-slots</u> ~~**302a, 302b**~~ **<u>302A, 302B</u>**. The pilot channel bursts ~~**304a, 304b**~~ **<u>304A, 304B</u>** comprise a pilot channel signal covered by a code, e.g., a Walsh code with index 0. The pilot channel is a common control channel broadcasted to all remote stations, i.e., information transmitted on the pilot channel is intended to be received and used by all remote ~~station~~ <u>stations</u>. In general, a control channel carries overhead data, but may also carry user data. The term overhead data is information enabling operation of entities in a communication system, e.g., call maintenance signaling, diagnostic and reporting information, and the like.

On page 8, please replace paragraph [0032] with the following paragraph:

The forward link traffic channel or the control channel payload is sent in the remaining portions [[**308a**]] **<u>308A</u>** of the first half-time-slot [[**302a**]] **<u>302A</u>** and the remaining portions [[**308b**]] **<u>308B</u>** of the second half-time-slot [[**302b**]] **<u>302B</u>**. The traffic channel carries user data, i.e., information other than overhead data. The total transmit power on the forward channel is fixed and does not change as a function of time.

On pages 8-9, please replace paragraph [0033] with the following paragraph:

In general, the forward link is amplified before transmission. An amplifier can provide a limited total output power without undesirably distorting the amplified signals; consequently, the more power transmitted in one channel, the less power is available to the other channels. As described, the forward link comprises time-division multiplexed traffic channel, pilot channel, and medium access control channels (MACs). Because the forward link is always transmitted at a limited total output power ($P_{PAM}$), and the MACs including the reverse activity channel (RA), the reverse power control channels (RPC), the DRC Lock channels, and the acknowledgement/non-acknowledgement channels (ACK/NAK) are code division multiplexed, the $P_{PAM}$ must be allocated among the RA channel, the RPC channels, the DRC Lock channels, and the ACK/NAK channels ~~(ACK/NAK)~~.

On page 11, please replace paragraph [0045] with the following paragraph:

As described above, a forward link amplifier can provide a limited total output power ($P_{PAM}$) without undesirably distorting the amplified signals. As described above, the forward link comprises time-division multiplexed traffic channel, pilot channel, and MACs. Because the forward link is always transmitted at the $P_{PAM}$ and the MACs, i.e., the reverse activity bit (RAB) channel, the reverse power control channels (RPC), and the acknowledgement/non-acknowledgement channels (ACK/NAK) are code division multiplexed, the $P_{PAM}$ comprises power allocated to the RA channel ($P_{RACH}$), power allocated to RPC channels ($P_{RPCCH}$), and power allocated to ACK/NAK channels ($P_{ACK/NAK}$).

On pages 11-12, please replace paragraph [0046] with the following paragraph:

**FIG. 4** is a flowchart illustrating an embodiment of the present invention. The power allocation starts in step **400** and continues in step **402**. All users in the coverage area of the cell are sorted in order of increasing required MAC channel power in step **402**. The users are then placed in different bins based on the required power allocation in step **404**. If some of the users have the same required ARQ power, then these users are sorted in the order of decreasing forward link signal to interference and noise ratio (FL_SINR) in step **406**.

On page 12, please replace paragraph [0050] with the following paragraph:

If MAC channel power is available after boosting the power allocation for the access terminals based on the sorted list of decreasing FL_SINR, power allocation is boosted for all active users' ARQ channels in predetermined increments up to a predetermined maximum amount of increase in step **424.** Active users may include non-server, soft-handoff users who do not consider the BTS as the serving cell and who are in a soft-handoff with the BTS. In an embodiment, the power allocation is boosted for all non-server, soft-handoff users' ARQ channels in increments of 1dB up to a maximum increase of 3dB. A determination is then made as to whether Tarq is greater than Tarq_req in step **426**. If Tarq is greater than [[Tarq]] Tarq_req, all users are boosted in power uniformly in step **428**. Otherwise, the method ends in step **430**.

On page 13, please replace paragraph [0052] with the following paragraph:

In step **504**, the MAC channel power is allocated to the RPC channels of both legacy and new users. The RPC channel of each user is allocated an amount of power that is not more than a predetermined fraction, for example, not more than 3% of the total MAC channel power. The MAC channel power is also allocated to the data rate control lock (DRCLock) channel of new users in the same manner, that is, the DRCLock channel of each new user is allocated not more than 3% of the total MAC channel power. The method continues in step **506**.

On page 13, please replace paragraph [0053] with the following paragraph:

In step **506**, the total RPC channel power allocation (Trpc) and the total ARQ channel power allocation (Tarq) are determined. In an embodiment, a maximum power allocation (Max_rpc_alloc) for the RPC channel is determined according to the following relationship:

$$\text{Max\_rpc\_alloc} = (\text{Prpc, max} * \text{Overhead\_softhandoff}/\text{Margin\_rpc}) * (\#\text{legacy} + \#\text{new} * (\text{PC\_Update\_rate}/600) * \text{Overhead\_drclock})$$

where Prpc,max is the maximum RPC channel power allocation per user, which is 3% of the total MAC channel power in an embodiment,

where Overhead_softhandoff is the soft-handoff overhead which is the active cell size,

where Margin_rpc is a power margin which is a scaling factor to allocate some fraction of maximum required power,

where #legacy is the number of legacy users in the cell,

where #new is the number of new users in the cell,

where PC_Update_rate is the power control update rate, and

where Overhead_drclock is the DRC Lock channel overhead for new users.

On page 17, please replace paragraph [0068] with the following paragraph:

A controller **700** and an access terminal **702** are illustrated in **FIG. 7**. The user data generated by a data source **704**, are provided via an interface unit, e.g., a packet network interface, PSTN, (not shown) to the controller **700**. As discussed, the controller **700** interfaces with a plurality of access terminals, forming an access network. (Only one ~~assess~~ access

terminal **702** is shown in **FIG. 7** for simplicity). The user data are provided to a plurality of selector elements (only one selector element **702** is shown in **FIG. 7** for simplicity). One selector element **708** is assigned to control the user data exchange between the data source **704** and data sink **706** and one or more base stations under the control of a call control processor **710**. The call control processor **710** can comprise, e.g., a processor and a storage medium coupled <u>with</u> the processor and containing a set of instructions executable <u>to</u> the processor. As illustrated in **FIG. 7**, the selector element **702** provides the user data to a data queue **714**, which contains the user data to be transmitted to access terminals (not shown) served by the access terminal **702**. In accordance with the control of a scheduler **716**, the user data is provided by the data queue **714** to a channel element **712**. The channel element **712** processes the user data in accordance with the IS-856 standard, and provides the processed data to a transmitter **718**. The data is transmitted over the forward link through antenna **722**.

On page 17, please replace paragraph [0070] with the following paragraph:

One skilled in the art will appreciate that although the flowchart diagrams are drawn in sequential order for comprehension, certain steps can be carried out in parallel [[in]] <u>to</u> an actual implementation.

On page 18, please replace paragraph [0074] with the following paragraph:

The steps of a method or algorithm described in connection with the embodiments disclosed herein may be embodied directly in hardware, in a software module executed by a processor, or in a combination of the two. A software module may reside in RAM memory, flash memory, ROM memory, EPROM memory, EEPROM memory, registers, hard disk, a removable disk, a CD-ROM, or any other form of storage medium known in the art. An exemplary storage medium is coupled to the processor such <u>that</u> the processor can read information from, and write information to, the storage medium. In the alternative, the storage medium may be integral to the processor. The processor and the storage medium may reside in an ASIC. The ASIC may reside in a user terminal. In the alternative, the processor and the storage medium may reside as discrete components in a user terminal.